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| 10/516,424 | 11/29/2004 | Tatsuya Kato | 890050.513USPC | 4961 |
| 500 7590 10/10/2007 SEED INTELLECTUAL PROPERTY LAW GROUP PLLC 701 FIFTH AVE SUITE 5400 SEATTLE, WA 98104 | | | EXAMINER NGUYEN, LINH THI | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/516,424

Applicant(s)

KATO ET AL.

Examiner

Linh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-13 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-13 and 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Objections

Claim 4 is objected to because of the following informalities: the claims need to define what are VL, VM and VH. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 12, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ueki (US Patent Number 6404713).

In regards to claims 1, 12, 13 and 19, Ueki discloses a method, apparatus and medium for recording data in an optical recording medium (Fig. 2) wherein data are recorded in a write-once type optical recording medium including at least one recording layer disposed on a substrate (Fig. 2, element 2 recording layer on a substrate element 1) by projecting a laser beam whose power is modulated in accordance with a pulse train pattern including at least pulses whose levels are set to levels corresponding to a recording power (Fig. 3) and a bottom power onto the at least one recording layer (Pb) and forming a recording mark in a predetermined region of the at least one recording layer (Fig. 3, input signal is recording mark), the method for recording data in an optical recording medium comprising a step of employing a pulse train pattern (Fig. 3) having

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the smaller number of pulses whose level is set to a level corresponding to a recording power as a linear recording velocity becomes higher (Fig. 3, as linear velocity increase the waveform is WB so has less pulses and as decrease in linear velocity the recording waveform is WA with more pulses) and modulating the power of a laser beam thereby to form a recording mark in the predetermined region of the at least one recording layer (Column 10, lines 30-36 and lines 60-63), wherein the number of pulses is set to 1 in the case where data are to be recorded at a linear recording velocity equal to or higher than a first linear recording velocity V_H (Fig. 3, the waveform WB is set to 1 pulse as linear velocity increases).

In regards to claims 4 and 16, Ueki discloses the method for recording data in an optical recording medium in accordance with claim 1, wherein in the case where data are to be recorded at a linear recording velocity V_M (velocity of 6 m/s) lower than the first linear recording velocity V_H (9 m/s) and higher than a second linear recording velocity V_L (3 m/s; Column 11 lines 30-33), the number of pulses is set to 1 at least when the shortest recording mark is to be formed (Fig. 3, if recording mark is 4T the pulses would be set to 1) and the number of pulses is set larger as the length of a recording mark to be formed becomes longer (Fig. 3, with 8T the pulses is longer).

In regards to claims 5 and 17, discloses the method and apparatus for recording data in an optical recording medium in accordance with claim 1 wherein in the case where data are to be recorded by forming recording marks having respective lengths at

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a linear recording velocity, the number of pulses is set so that a difference between itself and the number representing a length of a recording mark is constant (Fig. 3, the pulses is constant in the waveform WA and WB it is 1 pulse).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueki in view of Hideya (JP Publication number 10106008).

In regards to claims 6 and 18, Ueki discloses all that is claimed in claim 1. However, Ueki does not disclose the method and apparatus for recording data in an optical recording medium wherein the first linear recording velocity is determined to be equal to or higher than 10 m/sec.

In the same field of endeavor, Hideya discloses the method and apparatus for recording data in an optical recording medium wherein the first linear recording velocity is determined to be equal to or higher than 10 m/sec (Fig. 5). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine a method of recording data in an optical recording medium of Ueki to have a linear velocity equal to or higher than 10 m/sec as suggested by Hideya. The motivation for

doing so would have been to perform a recording mark at a high speed.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueki in view of Sunagawa (US Patent number 6442119).

In regards to claims 7 and 8, Ueki discloses everything claimed as applied above (see claim 1). However, Ueki does not disclose a recording data in an optical recording medium, wherein the bottom power is set to a higher level as the linear recording velocity becomes higher.

In the same field of endeavor, Sunagawa discloses the bottom power is set to a higher level as the linear recording velocity becomes higher (Column 3, lines 60-67). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the method of recording data in an optical recording medium of Ueki to set the bottom power higher as velocity increase as suggested by Sunagawa. The motivation for doing so would have been to record at a high-speed with using high power laser beam.

Claims 9 and 10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueki in view of Nobukuni et al (Patent Number 6411579).

In regards to claim 9, Ueki discloses everything claimed as applied above (see claim 1). However, Ueki does not disclose a laser beam having a wavelength equal to or shorter than 450 nm.

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In the same field of endeavor, Nobukuni et al discloses a laser beam having a wavelength equal to or shorter than 450nm (Column 5, lines 47-51). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the method of recording data in an optical recording medium of Ueki to have a laser beam wavelength of 450nm as taught by Nobukuni et al. The motivation for doing so would have been to record at a high-speed using a blue wavelength laser light on any optical recording medium.

In regards to claim 10, Ueki does not but Nobukuni et al discloses the method for recording data in an optical recording medium, wherein data are recorded in the optical recording medium by employing an objective lens and a laser beam whose numerical aperture NA and wavelength λ satisfy $\lambda/NA \leq 640$ nm, and projecting the laser beam onto the optical recording medium via the objective lens (Column 5, lines 47-51; wavelength of $400/.65=615$ nm, which is less than 640nm). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the method of recording data in an optical recording medium of Ueki to have a laser beam with a numerical aperture and wavelength of less than 640nm as taught by Nobukuni et al. The motivation is the same as claim 9 above.

Claims 11 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueki in view of Nobukuni et al as applied to claim 1 above, and further in view of Takashi et al (JP Publication Number 2001101709).

In regards of claims 11 and 20, Ueki and Nobukuni et al do not but Takashi et al discloses the method and medium for recording data in an optical recording medium, wherein the optical recording medium further comprises a light transmission layer (Fig. 3, element 11B), and a first recording layer (Fig. 3, element 111) and a second recording layer (Fig. 3, element 112) formed between the substrate (Fig. 3, elements 101 and 102) and the light transmission layer, and is constituted so that the at least two recording marks are formed by projecting the laser beam thereunto (Fig. 3), thereby mixing an element contained in the first recording layer as a primary component and an element contained in the second recording layer as a primary component (Paragraph [0040]). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the method of Ueki and Nobukuni et al to contain a substrate and 2 recording layers as suggested by Takashi et al. The motivation for doing so would have been to offer a storage medium that is reliable under high-speed type recording.

In regards to claim 21, Ueki and Nobukuni et al do not but Takashi et al discloses the write-once type optical recording medium, wherein the second recording layer is formed so as to be in contact with the first recording layer (Fig. 3). The motivation is the same as claim 20 above.

In regards to claim 22, Ueki and Nobukuni et al do not but Takashi et al discloses the write-once type optical recording medium, wherein the light transmission layer is formed so as to have a thickness of 10 nm to 300 nm (Paragraph [0021]). The motivation is same as claim 20 above.

Response to Arguments

Applicant's arguments filed 08/03/07 have been fully considered but they are not persuasive.

In regards to claims 1 and 19, Applicant argues that Ueki does not disclose or suggest "in the case where data are to be recorded at a linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity, the number of pulses is set to one (1) at least when the shortest recording mark is to be formed and the number of pulses is set larger as the length of the recording mark to be formed becomes longer." However, Ueki does discloses the case where data are to be recorded at a linear recording velocity lower than the first recording velocity (in this case the highest velocity is 9m/s = first linear recording velocity) and higher than a second linear recording velocity (Fig. 4, shows the limitation is setting a range of velocity that is lower than the highest velocity=9m/s but higher than the lowest velocity= 1.5m/s), the number of pulses is set to one (1) at least when the shortest recording mark is to be formed (in figures 1, 3, 7 and 8 shows that the shortest recording mark is 4T and the longest is 8T, however, column 22, lines 24-28 suggest the mark can be 3T to 11T, so

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for mark 8T there are 6 pulses, 7T; 5 pulses, 6T; 4 pulses, 5T; 3 pulses, 4T there are 2 pulses and for 3T one pulses) and the number of pulses is set larger as the length of the recording mark to be formed becomes longer (Fig. 3, waveform WA has pulses increase from 2 pulses for 4T to 6 pulses for 8T).

In regards to claim 12, Applicant argues that Ueki does not disclose "employing a pulse train pattern having a smaller number of pulses whose level is set to a level corresponding to a recording power as a ratio of track pitch TP of the recording medium to a diameter of a spot of the laser beam becomes smaller." This argument is not persuasive. Ueki does disclose a pulse pattern (Fig. 7) having a smaller number of pulses (when comparing the pulses of Fig. 3 waveform WA to Fig 7, hence Fig. 7 has smaller pulses) whose level is set to a level corresponding to a recording power (Pw) as a ratio of track pitch TP of the optical recording medium to a diameter of a laser spot (Column 12, lines 1-22, as the intervals between recording marks are relatively narrow (smaller) and the spot of laser beam is relative to the speed so has the intervals is smaller the ratio is smaller hence the ratio TP/D).

In regards to claim 13, Applicant argues that Ueki does not disclose "wherein a ratio of the bottom power to the recording power is set higher as the linear recording velocity becomes higher." However, Ueki discloses as linear is higher (Fig. 3 waveform WB has a higher velocity 9 m/s and waveform WA has a lower velocity) the ratio of the bottom power to the recording is set higher (Fig. 3, the waveform WB has a higher

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velocity, there is no Pb power in between Pp, therefore, the ratio $P_p/P_b = (P_p/P_p) = 1$, and waveform WA has a slower velocity with a same Pp but lower Pb so would equal a smaller number than waveform WB).

In regards to claim 16, Applicant argues that there was no rejection and therefore, if newly cited art is used the office Action should be non-final. However, claim 16 has similar languages as claim 4 so no new reference is cited therefore the rejection is maintain.

Claims 1, 4-13, and 16-22 are not patentable in view of Ueki.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh T. Nguyen whose telephone number is 571-272-5513. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN
October 2, 2007


WAYNE YOUNG
SUPERVISORY PATENT EXAMINER